Small Business Innovation Research/Small Business Tech Transfer

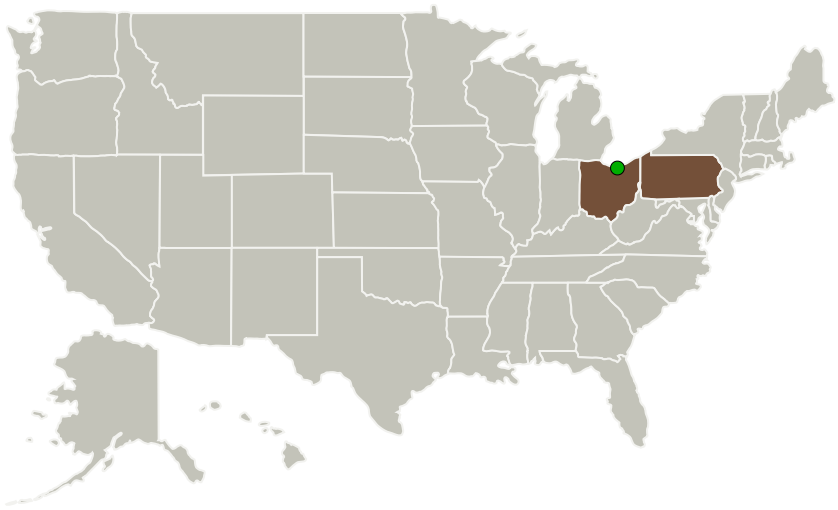
Space Electronics Operating at High Temperatures and Radiation Levels, Phase II

Completed Technology Project (2012 - 2015)

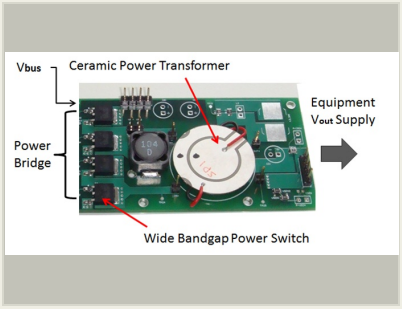
Project Introduction

The objective is to produce high efficiency DC/DC power modules in a small low profile package that can tolerate extreme environment conditions. The primary effort of the Phase II program is to address the need for very high performance power electronics that meet a combination of high radiation tolerance, high thermal tolerance and extremely low EMI susceptibility/radiation. The power modules incorporate several radical new advances in power design including ceramic cores and quasi-linear circuitry. The program will exit with such modules having been verified for thermal vacuum and electromagnetic (susceptibility and radiation) performance of modules that can tolerate >0.3Mrad and >200C operation with negligible electromagnetic coupling and extremely high electrical isolation.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
QorTek Inc	Lead Organization	Industry Small Disadvantaged Business (SDB)	Williamsport, Pennsylvania
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



Space Electronics Operating at High Temperatures and Radiation Levels Project Image

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Primary U.S. Work Locations	
Ohio	Pennsylvania

Project Transitions

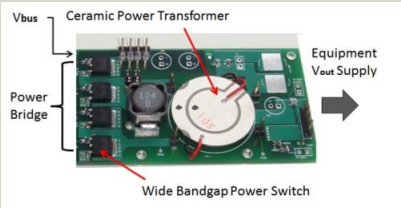
December 2012: Project Start

April 2015: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137305)*

Images



Project Image
Space Electronics Operating at High Temperatures and Radiation Levels Project Image
(https://techport.nasa.gov/image/130838)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
QorTek Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Gareth J Knowles

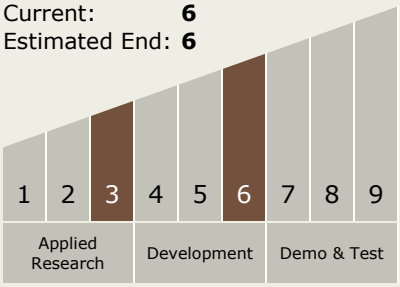
Co-Investigator:
Gareth Knowles

Space Electronics Operating at High Temperatures and Radiation Levels, Phase II

Completed Technology Project (2012 - 2015)

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.3 Power Management and Distribution
    - TX03.3.3 Electrical Power Conversion and Regulation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System